

REMARKS/ARGUMENTS

The amendments to Claim 1 are supported by the claim as originally filed and by the explanation of the invention presented in the original specification. Other amendments to the original claims are formal in nature.

New Claim 11 is supported at page 2, lines 25-27 of the English translation of the specification. New Claim 12 is supported at specification page 2, lines 28-32. New Claim 13 is supported at specification page 3, lines 7-16, this same portion of the specification also supporting new Claims 14 and 15. New Claim 16 is supported at specification page 3, lines 26-31. New Claim 17 is supported at specification page 5, lines 22-34. No new matter has been entered.

The term “silica/alumina” as used in the claims is defined in the specification at page 5, lines 14-16 (referring to the English translation) as “compounds comprising silica and alumina and in which at least a portion of the silica and at least a portion of the alumina have reacted to form Si-O-Al bonds.” Also noted in the specification at page 5, lines 16-17 is the fact that physical mixtures of pure silica and of pure alumina do not correspond to this definition. Because the claim term “silica/alumina” is clearly defined in the specification in an understandable way, the use of this term in the claim particularly points out and distinctly claims the subject matter which Applicants regard as the invention. See, e.g., MPEP 2111.01 IV and 2173.05(a). The rejection under 35 USC 112 should be withdrawn.

The anticipation and obviousness rejections based on Funakoshi are traversed. Funakoshi relates to a method of recovering organic sulfur compounds from a liquid oil that includes distilling the oil and passing the distillate through a column packed with an absorbent selected from activated carbon, silica gel, alumina, and combinations of two or more of these absorbents to recover the oxidized organic sulfur compound remaining in the distillate. See page 3, lines 47-52 of Funakoshi.

Thus, Funakoshi relates to absorbents that are either silica gel, alumina, or a combination of silica gel and alumina, none of which are Applicants' claimed absorbent solid comprising at least 60% by wt. of amorphous silica/alumina. As explained in the specification and mentioned above in regard to the rejection under 35 U.S.C. 112, silica/alumina is neither silica nor alumina, nor a simple physical combination of these two materials. Instead, silica/alumina describes compounds comprising silica and alumina and in which at least a portion of the silica and at least a portion of the alumina have reacted to form Si-O-Al bonds. Thus, silica/alumina is different *in kind* from silica, alumina, and a simple mixture of silica and alumina. In view of this difference, the anticipation rejection should be withdrawn.

With regard to the obviousness issue, Funakoshi does not suggest or enable the use of silica/alumina as claimed. Moreover, Applicants have already demonstrated the differences between the present invention silica/alumina absorbent and the use of silica and alumina individually in the Examples beginning at specification page 8 and summarized in Tables 2 and 3. In this regard, note especially Examples C1 and C2, both directed to the use of silica, and Example C3, directed to the use of alumina, and compare the results provided with, e.g., Examples 4-7 using silica/alumina according to the present invention. As shown by the percent sulfur removed, the result, like the absorbents themselves, are different in kind, with silica/alumina absorbents according to the present invention providing significantly greater sulfur reduction as compared with either silica or alumina.

Thus, because Funakoshi does not suggest the use of the different chemical species silica/alumina as presently claimed, and because the presently claimed absorbent outperforms anything suggested by Funakoshi, this reference cannot form the basis of *prima facie* case of obviousness against the pending claims.

This critical deficiency in Funakoshi is not eased by Chapidos, cited for the disclosure of a particular hydrocarbon feedstock, or by Frye, disclosing solid absorbent substrates comprising at least 50 wt% alumina (see column 3, lines 11-16)¹ or by Tsybulevskiy, which discloses metal-substituted crystalline zeolites.² Thus, even the combination of references used in the obviousness rejection fails to present a *prima facie* case.

Accordingly, and in view of the differences between Applicants' claimed process and that described in the applied references, Applicants respectfully submit that the present application is in condition for allowance, and early notification to this effect is respectfully requested.

Respectfully submitted,

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¹ In addition to other differences, the present invention absorbent solid comprises at least 60% by wt. of amorphous silica/alumina, which is different from alumina itself.

² In addition to other differences, the present claims require the use of at least 60% by wt. of amorphous silica/alumina.